THE MARINE RECORD

ESTABLISHED 1878

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PORTRAIT OF GENERAL C. M. POE.

Mr. Percy Ives, of Detroit, has been for some time past engaged on a life-size portrait of the late General O. M. Poe. The commission was given by Gen. Russell A. Alger, and the picture will probably be sent to Washington for exhibition in the War Department. Mr. Ives is the artist who painted the famous portrait of President Cleveland at the White House, when he occupied a studio especially fitted up for him in the Executive Mansion. He says General Poe's portrait has attracted more attention than any picture he has painted since that of the President. Both Gen. Alger and Mrs. Poe have taken great interest in the progress of the work, and Gen. Alger thinks the portrait the best work Mr. Ives has accomplished. The work has been a labor of love with the artist, who was a personal friend of Gen. Poe, having been associated with him in the Prismatic Club of Detroit, of which the General was a distinguished member.

The absence of color in the accompanying illustration prevents an adequate idea of the merits of the work itself. In breadth of handling and in unity of conception, it is beyond doubt, Mr. Ives' best work. Without ignoring the importance of the uniform and the various trappings, medals, sword, etc., the artist has so treated them that they in no way intrude themselves upon the gaze, but go to make up the great ensemble, in which the military bearing and fine yet kindly countenance of the dead general are the prominent features.

In modeling and color the portrait is extremely satisfactory, and has received many appreciative comments, both from the press and brother artists. Col. Lydecker, a close friend of Gen. Poe, gave a number of sittings for the body, hand, and all the trappings. The sword in the portrait is the one presented to Gen. Poe by the non-commissioned officers of the Second Regiment of Michigan Volunteers. The background of the portrait is a deep red, with brownish tendency. The head is relieved as light against the background, rather more than appears in the reproduction. It is painted with a solid body color, and has a force and impressiveness that cannot be shown here. The background is also somewhat lighter than it appears, and a good deal of light is shown near the hand book, and table, the tint being a rich reddish gold.

FLATTENING ROLLED BLUE-PRINTS.

Every one who handles drawings knows the stubbornness with which a blue-print that has once been rolled will strive to remain in that condition. Rolling in the opposite direction is of no use, but the most refractory blue-print can be made to lie flat. Take it to a drawing board or table and, allowing the roll to rest upon the table, draw end of the sheet, with the right hand, down over the edge, pressing firmly on the paper with the left hand, so that the whole length of the sheet is drawn over the corner and bent back contrary to the direction of the tendency to roll. One application is usually sufficient, but if this fails the second trial will complete the cure. —Dixie.

TORPEDO BOATS OF CANAL DRAFT.

Secretary Herbert has about completed the details of a scheme of coast defense which is of vast importance to lake cities. The Secretary has about decided to ask for authority to build a fleet of light-draft torpedo boats, about twenty-five in number, and under 100 feet in length. This is done with special reference to the possibility of sending them through the Erie canal so as to reach the lakes at once in case of trouble.

The United States now possesses only two torpedo boats, but seven more are authorized or building. France, on the other hand, has 218 in service and 54 building; Great Britain, 189 in service and 62 under construction; while Spain and Japan have doubled their torpedo service. Contracts for three torpedo boats of the general type of the Ericsson, but with slightly greater displacements, were made on May 3d of last year, and they are contracted to be completed by next August.

The new fleet contemplated by the Secretary is to be of a smaller type, and the theory is that if forced through the Erie canal they could operate on Lake Ontario and control the Welland canal.

THE FREIGHT MARKET.

Ore men estimate that little in the way of contract chartering will be done for a couple of weeks. Sales are

PAINTING OF THE LATE GEN. O. M. POE.

not reported, and it is hinted that the producers are holding off intending buyers until they can get the freight rate settled. Vessel owners are writing stiff letters to each other, and the rate they now talk of accepting is $1.15 from the head of Lake Superior.

The condition of the ice is such that from present indications navigation through the Straits will not open many days earlier than at the Sault. There is plenty of time, however, for these conditions to change. A glance at our Chicago, Buffalo and Duluth letters on Page 10 will show in what shape the freight market is at those three ports. There is a report current that a Buffalo owner has closed a cogtract for coal, Sandusky to the head of Lake Superior, at 40c, but this has not been verified, and there is serious question of its accuracy, as the vessel men have thus far stuck well together in demanding 50c.

STILL IN THE LEAD.

The plans for the sister battleships Kentucky and Kearsage, with their armament have been completed, and show a much more powerful battery than that of the British battleship Majestic, one of the latest to go into commission. The following table shows the armament of each vessel, and the weight of metal each will be able to throw at one firing:

KEARSAGE.		MAJESTIC.	
GUNS.	POUNDS.	GUNS.	POUNDS.
Fonr 12-inch	3,400	Four 22-inch	3 400
Four 8-inch	1,000	Twelve 6-inch	1,200
Fourteen 5-inch	700	Twelve 12-pounders	144
Twenty 6-pounders	120	Twelve 3-pounders	36
Six 1-pounders	6		
48 guns	5,226	40 guns	4 780

The displacement of the Majestic is 14,900 tons, and that of the Kearsage is estimated at 11,525 tons.

AMERICAN SOCIETY OF NAVAL ENGINEERS.

Mr. F. C. Bieg, secretary-treasurer of the American Society of Naval Engineers, issues the following, by direction of the Council, to the members and associate members under date of February 15:

In accordance with the resolution adopted on January 11, 1896, at the Annual Meeting of the Society of American Naval Engineers, the council takes pleasure in offering for competition, according to the rules of the resolution, the sums of $75 and $25 respectively, and suitable medals which will be prepared, for the two best original papers. The Council will award "Honorable Mention" to such other papers as may deserve this distinction.

By the broad terms of the resolution, the subject of a paper may be in the form of an original essay on any matter suitable for this society, or it may be on the results of original experiment or research. There is no limit to the length of the papers, nor in the number of illustrations which may be thought necessary.

The Council expresses the hope that members and associate members will strive for the honors thus bestowed by the Society, and by their original productions enhance the growing value of the Journal.

THE PASSENGER LINES.

Messrs. A. A. Parker, B. W. Parker, J. W. Millen, John Pidgeon, C. F. Bielman, and others, owners of the steamer Greyhound, have purchased the sidewheel steamer City of Toledo from the Toledo & Islands Steamboat Co. for whom she was built by John Craig in 1891. The purchase price is said to be $90,000 to $100,000. She has about the same capacity as the Greyhound, and is claimed to be a faster boat, which is saying a good deal. She will be operated on the Port Huron route.

Manager T. F. Newman, of the Cleveland & Buffalo Transit Co., informs the RECORD that the company has decided to change the manner of running its steamers on the Toledo extension from the plan announced a few weeks ago, which made Put-in-Bay the principal objective point. The run will be made at night instead of by day, steamers leaving Cleveland and Toledo at 10 p. m., and reaching their destination at 6 a. m. This change is made because the company has promise of a heavy business in regular traffic, and does not care to make it subordinate to excursion business. This does not mean, however, that the Put-in-Bay route will be abandoned or neglected. During the months when the Put-in-Bay season calls for the operation of boats this traffic will be provided for. The two Toledo steamers will double on their route, if necessary, and will make daylight trips via Put-in-Bay. The project of calling at Sandusky has been abandoned, swing to the close connections that can be made at the Islands for Sandusky and Lakeside.

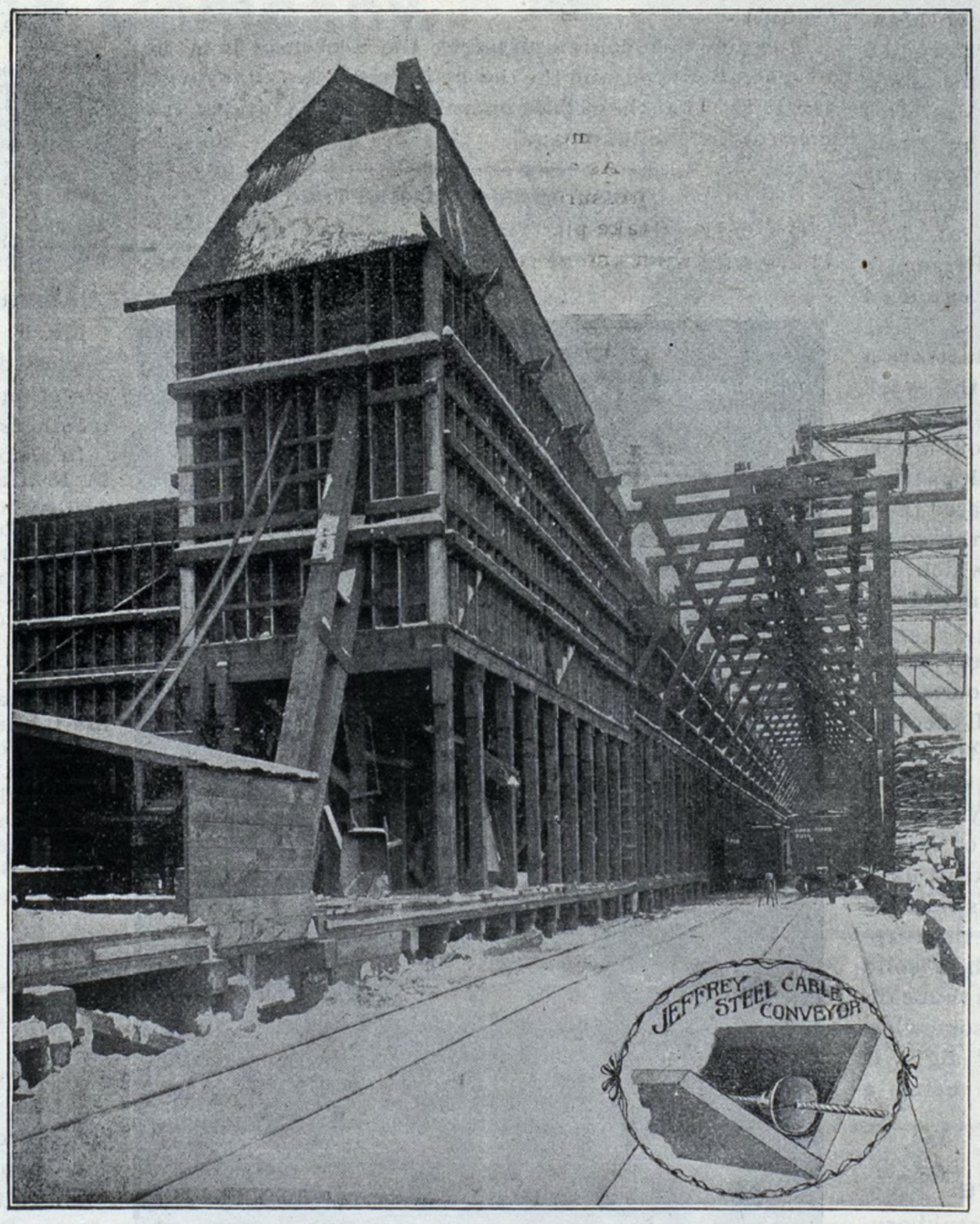
About 316,000,000 whitefish fry will be turned loose in Lake Erie from the Put-in-Bay hatchery next spring.

A MAMMOTH HARD COAL CONVEYOR.

The accompanying illustration is a view of the anthracite coal storage bins (900 feet long and 150 feet wide) on the docks of the Ohio Coal Co., located at Duluth. Beneath these storage bins operates one of the longest coal conveyors that has ever been built. Unfortunately the framework of the bins hides this conveyor in such a way that it was impossible to show it up in the photograph. This conveyor, known as the Jeffrey cable, is 950 feet in length, between the center of the head and foot shafts, thus necessitating the use of over 1,900 feet of steel wire cable. To this cable disks are clamped at regular intervals and the whole operates in a steel-lined trough. The bottom of the trough is curved in such a manner as to fit closely around the disks. From the storage bins the large coal is delivered over screens into cars for shipment. The smaller sizes fall through screens into the trough of the cable conveyor, by which it is carried to the extreme end of the bins. Here it is discharged into the elevator, which in turn delivers it to a revolving screen, which separates the coal into the desired sizes.

In connection with the long conveyor, runs a short cable conveyor at right angles, carrying to the long conveyor the screenings from a smaller system of pockets. These two conveyors, beside being used for the above purpose, also carry the regular size of coal from the storage bins to the pockets for loading wagons. The great advantage in cable conveyors for long distance carrying, is the great simplicity in construction, strength and durability. On account of this simplicity in construction, the original expense of installation as well as the maintenance of the conveyors is small, while the percentage of saving in labor effected by its use is very large. Not only is this form of cable conveyor applicable in the coal industries, but it has been used extensively, and with favorable results, for handling pulpwood, slabs, general wood refuse, and a large line of raw and finished product, such as it is necessary to carry or distribute around mills, factories or mines.

The Jeffrey Manufacturing Co., of Columbus, Ohio, will furnish at any time information and estimates to those contemplating the installation of appliances for rapid and economical handling.



OHIO COAL CO.'S CONVEYOR AT DULUTH.

THE OLD STORY.

Capt. Samuel G. Fairchild and Thomas H. Barrett, the New York United States Inspectors of Steam Vessels, have finished their report upon the stranding of the American Line steamer St Paul. The report is a lengthy document, dealing largely with technicalities, and in conclusion says: "We find that Captain Jameson was not unskillful in the management of his ship or negligent of his duty, and we are satisfied that he was taking every precaution that his long experience and successful career as a shipmaster suggested to be necessary to guard against accidents or casualties that would endanger the lives entrusted to his care, or that would result in injury to the ship or her cargo, and he is exonerated from all blame in connection with the stranding of the steamship St. Paul."

TRADE AND INDUSTRIAL NOTES.

The Davis & Egan Machine Tool Co., of Cincinnati, O. (formerly the Lodge & Davis Machine Tool Co.), has just been awarded a contract amounting to many thousands of dollars. This order was given out by the large firm of fire engine builders, and comprises a number of special machines. The order was taken after the buyer had visited the largest machine tool builders in the East. This speaks very eloquently for the Cincinnati firm, as the tools are of a special kind, and must be of the highest grade.

The new plant of the American Weldless Tubing Co., of Toledo, O., will be 215 by 115 feet, and will have a capacity at the start of 250,000 feet a month. The first machines will be shipped from England, and are now on the way. At the outset 300 men will be employed, but it is contemplated to increase this force by about 200 more by the first of June. Samuel Snell and Edward Warwick are the chief promotors.

As the spring season of painting and repainting comes along there is sure to be offered something in the way of paint mixture for the protection of roofs, iron work, etc. Dixon's Silica Graphite Paint has been favorably known for over a quarter of a century. Roofs painted with Dixon's "Silica Graphite" Paint have not required repainting in twelve to fifteen years and over.

An important addition to the Carnegie Steel Co.'s plant, at Duquesne, is an electrical plant, which is being built to furnish light for the furnaces and motive power for machinery. The plant will be the largest in this vicinity, and one of the finest in the world.

The Link Belt machinery Co., 39th street and Stewart avenue, Chicago, have issued catalogue No. 20, which is full of general interest for its illustrated descriptions of modern methods in mining and handling coal and other minerals. It also contains price lists, etc.

After a two months' shut-down the Johnson Company's steel mills, at Lorain, have resumed operation, working double turn. The mills now roll only 60-foot rails, and have many good orders booked.

J. Hope, of 14 Water street, Liverpool, Eng., is in New York introducing the Hope patent ship's course recorder, a device for automatically registering a vessel's course at sea.

Friends of Mr. C. E. Delaney, of New York, will be interested to learn that he is now representing the Deane Steam Co., having his headquarters at 72 Cortlandt street, New York.

Proposals are wanted at Toronto, Can., until February 27 for a compound duplex pumping engine of 500,000 imperial gallons daily capacity with condenser and boiler.

The Engineer, of New York, has commenced publishing a series of articles upon "Practical Boiler Making," by John Cook, of the Lake Erie Boiler Works, Buffalo.

The McKim Gasket Co. of No. 319 Dearborn street, Chicago, have issued a new catalogue and price list, abrogating all former quotations.

MARCH MAGAZINES.

It is a remarkable characteristic of our most advanced modern machinery that it simulates the operations of a living organism. This is especially noticeable in the recent applications of electricity. Park Benjamin, in an article entitled "The Nerves of a War Ship," contributed to March Harper's, developes this feature as illustrated in the delicate and complex internal machinery of an American cruiser, showing how the latest inventions have given its intimate operations an almost physical character. Woodrow Wilson continues his papers on George Washington, showing him in his boyhood and early manhood—as surveyor, and as soldier in the memorable and disastrous campaign of Braddock against the French. One of Howard Pyle's noble illustrations for this paper, "Washington's Retreat from Great Meadows," appears as frontispiece to the number. In the "Personal Recollections of Joan of Arc" the story of the great trial is the principal feature.

The Arena for March contains a number of articles of wide interest, in the discussion of economic, social, literary, and metaphysical problems. The Pingree potato plan, by which the Mayor of Detroit accomplished so much good for the better classes of the poor of that city is seriously treated by the editor under the title of "A Successful experiment for the Maintenance of Self Respecting Manhood," with a full page portrait of Mayor Pingree, and several other illustrations. "The Social Value of Individual Failure" is a unique subject skillfully treated by Prof. George D. Henn. The attractions of "Mexico in Midwinter" are ably presented by Justice Walter Clark, LL.D., the accompanying views proving something of a revelation to most readers of this valuable magazine-review.

In Scribner's Magazine for March, E. Benjamin Andrews, in his history of the last quarter-century of the United States, reviews the eleventh census, the World's Fair, the Homestead riots, the works of Edison, Tesla and other great inventors, and the last Presidential campaign. The number contains several tasteful color illustrations, presented with a paper on carnations, by J. H. Connelly. "Florentine Villas," by Lee Bacon, is a fascinating description of the home life of the Tuscans, and some of their grander dwellings. "British opinion of America," by Richard Whitney, is of especial inter est at this time, and is worthy of wide and careful readng.

The Century for March is largely in a lighter vein than usual, some of the feature articles being "A Personally Conducted Arrest in Constantinople," with dainty illustrations by the author, Mr. F. Hopkinson Smith. Three stories by Vibert, accompany his famous pictures. Prof. H. C. Mercer, of the University of Pennsylvania, gives results of researches made while on the track of "The Arkansas Traveler." An article on John Randolph, by Powhatan Bouldin, consisting of new recollections and hitherto published letters, present his character in a graphic light. Mrs. Emily Crawford, the Paris correspondent, contributes a vivid sketch of the elder Dumas. An account of "Stamping Out the London Slums," written by Edward Marshall, Secretary of the New York Tenement House Commission, will be a revelation to Americans, besides giving valuable suggestions as to the treatment of similar problems on this side. The accomplishments of irrigation in arid America are well set forth by William E. Smythe. Short stories and essays of a high literary character, with installments of serials and editorial matter make up the number.

Capt Crosby of Detroit, will dynamite the wreck of the schooner Reindeer, which was wrecked last fall at Crawford's quarry and obstructs the navigation at that port. He will also make exploratory investigations toward removal of rocks and otherwise dredging the shoal at Rogers City, so that a depth of at least 14 feet may be obtained in the approach to the Rogers City docks.

STUDYING THE WATER-TUBE BOILER.

Yarrow & Co., of Poplar, England, conducted last month a series of experiments with water-tube boilers, the results of which they have recently made public. They have for some time past cherished the theory that by applying heat to the pipes used for the downward flow of water, the circulation is increased, and not retarded, as is the popular and apparently quite natural supposition.

The experiments were nine in number, the first four of these being arranged to show the methods of indicating the comparative rapidity of flow of water, or of water and steam. In the case of the first three, this was indicated by a pointer actuated by a grooved bob, which, on a current being set up, pulls on the end of the

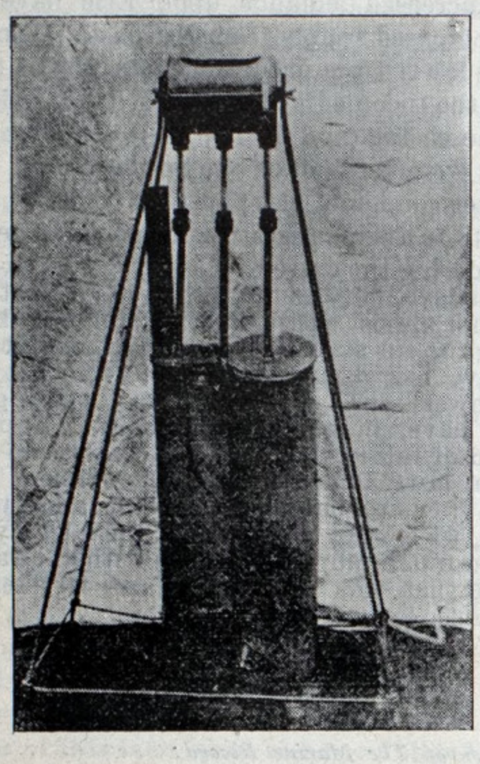


FIG. 2.

arm, and causes the pointer to move along the scale. In each of these cases it was satifactorily proved that the addition of the heat to the down tube increased the circulation, but no exact record was attempted.

In experiment No. 4, by the adoption of a screw of certain pitch introduced into the current which was devised to actuate a wormwheel attached to a counter, the speed of the current could be ascertaiued.

The next experiment, No. 5, was specially interesting, and is illustrated by Fig. 1. Here we have six Bunsen burners and two glass tubes, the burners on the up tube being the largest. Circulation was started by lighting the burners to the up tube, and afterwards those on the down tube. It was found that the heat on the down

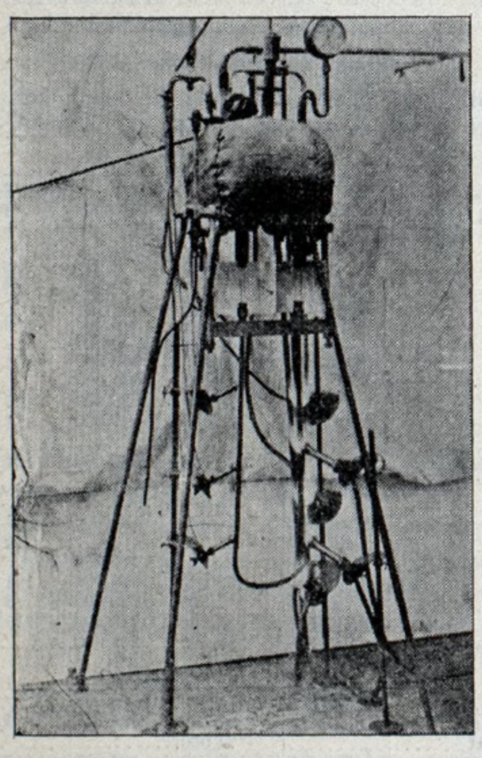


FIG. 3.

tubes increased the circulation, as shown in the preliminary experiments.

The next experiment more nearly approximated to the design of a Yarrow boiler, as is illustrated in Fig. 2. This was composed of three tubes, the lower parts of which were of copper and the upper parts of glass; each led into a drum at the top, and communicated with each other at their lower ends. In this case the Bunsen burners were placed at one side of the casing, the flame playing on the outer tube, and the heated gases then passing the other two tubes on the way to the cylinder shown. On the burners being lit an upward current was set up in the tube nearer the flame, the others acting as downcomers.

As the heat increased the two nearest tubes had ascending currents, whilst the third tube brought down all water necessary for efficient circulation.

In the next case illustrated another three-tube model was shown, but two of these were in front of the casing and one at the back, each heated by a multiple-flame burner. The results shown here were similar to those obtained in the preceding case.

Following this, some experiments were given in another room showing the forcing of air into the glass tubes, either separately or simultaneously, and the effect on the circulation, which was most interesting.

The next was the most crucial experiment of all. In this instance, it will be seen from Fig. 3 that, whereas in the former model the receptable at the top was open, in this case a closed drum was used. The two tubes were connected at the bottom by a U piece, and at a convenient height glass tubes were inserted to enable he circulation to be witnessed.

By the application of three small burners to one tube circulation was started, after which the five large burners for heating the tube forming the other leg of the U were brought into play. It was then found that the circulation was greatly increased, and continued in the same direction, the more highly heated tube acting as the downcomer. As a final test in this case, steam was generated to a pressure of 150 lbs., when the three small lamps to the uptake pipes were extinguished. Then the current of steam and water continued to circulate in the

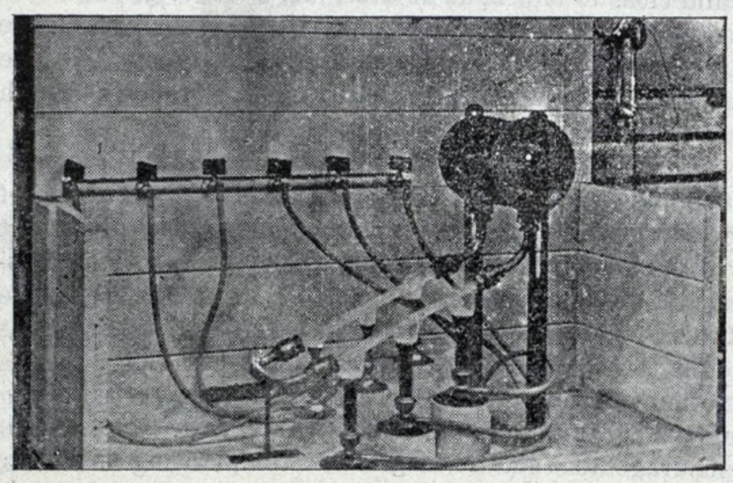


FIG. 1.

tube which acted as a downcomer, although the whole of the heat of the five large Bunsen burners were applied to this tube, whilst the others were extinguished.

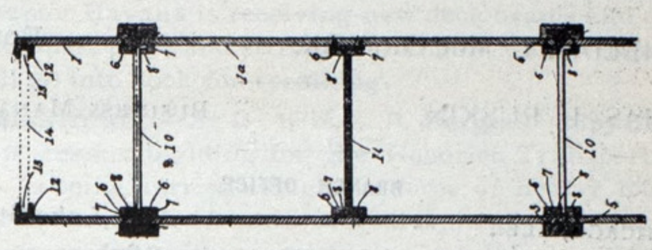
All of the foregoing experiments were conducted in rooms adjoining the general offices of Messrs. Yarrow & Co.; the remaining tests were given in a more extended form in the boiler-shop of the works, where furnaces were brought into use and the effect of forced draught on boiler tubes demonstrated, all of which proved most successful, the final demonstration showing that the expansion and contraction of the straight tubes as employed in a Yarrow boiler is not so great as to set up detrimental action in the shape of leaky joints, as at ne time ant icipated.

This and other experiments prove conclusively that so long as there is a good circulation, no possible objection can exist to the adoption of straight tubes, owing to the imagined necessity to allow for variations in length due to differences in temperature. This and other kindred features, proved by long experience and continued experiment, will in the near future be fully dealt with by Mr. Yarrow in full detail in one or more valuable contributions to our leading scientific institutions, when the opportunity will serve to again return to this most interesting subject.

The Deep Waterway Commission has requested the co-operation of William Pierson Judson, C. E., of Oswego, in making a compilotion of the existing notes ond maps of parts of the Oswego-Oneida Mohawk valleys ship canal route, and to make such rapid surveys of the remaining parts as he may consider necessary to show what natural advantages the route offers, and whether they are worthy of an expensive and elaborate survey, such as is to be provided by Congressman Chickering's $100,000 bill, now pending.

NEW INVENTIONS.

John G. Haentges, of Buffalo, has obtained letters patent (No. 554,680) on a Crib for Building Piers, etc., for which he applied Sept. 3, 1895. The device consists of two parallel series of side sections, grooved bars substantially as above described for securing the sections end to end together, vertical bars secured parallel with each other in pairs to the inner sides of said sections, each one of a pair having a side flange extending toward the flange in its adjacent bar so as to leave a nearly inclosing groove extending from the top to the bottom of the two bars, in combination with transverse bind-

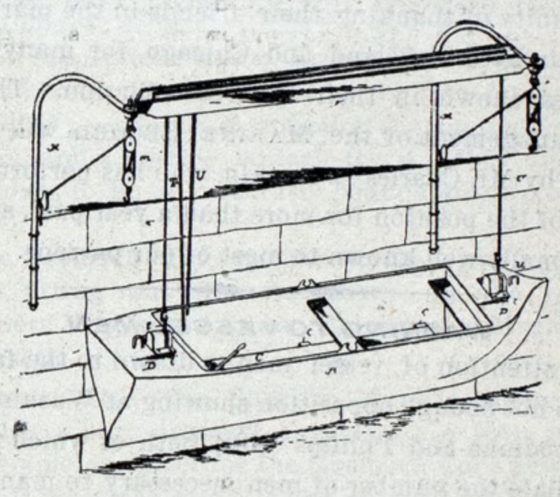


ing-bars having ends adapted to fit the grooves, for securing the sides of the crib.

Mr. Haentges has also patented (No. 553.681) means for utilizing currents of rivers, which consists of a number of endless belts moving parallel to each other across which a series of paddles are fixed These are connected by the shaft of one of the pulleys over which the belts operate, with a belt wheel from which the power obtained by the action of the stream against the paddles is transmitted.

Daniel Pike, of New Orleans, has patented (No. 555,018) a Device for Launching Boats, application having been made June 24, 1895. The claim is as follows:

The combination with a boat having its water-tight tanks or compartments B provided with the slots *h*, of the hoods fixed to said tanks and having slots in alignment with the slots *h* therein, the longitudinal bolt or rod E, an operating-lever connected to said rod, the vertical arms arranged in the tanks, with their lower ends fastened to the rod or bolt E, and having their upper ends passing through the slots *h* and housed within the



hoods, and coupling pins fitted to the upper ends of said vertical arms and arranged within said hoods, said pins adapted to be projected across the slots in the hoods or to be wholly withdrawn into the hoods.

2. The combination, with davits, of a coupling-bar supported by said davits and provided with a longitudinal divided slot and with a suitable guide, *p*, near one end, the sets of guide-sheaves within the divided slot of said bar, and the cables or ropes T, U, having the hooks *t*, *u*, and arranged on the guide-sheaves and in the guide *p*.

No. 554,434 protects a Rigging Stretcher, and is the fruit of the brain of Hans H. Pickenpack, Brooklyn, N. Y., application having been filed May 25, 1883, and renewed August 3, 1895. The claim is for the combination

of two plates having each a longitudinal series of holes, one of said plates being adapted to be connected to one part of the rigging to be stretched, a thimble-head secured to the other of said plates and adapted to be engaged by a loop of the other part of the rigging to be stretched, said thimble-head having a bearing for engagment with the loop of the rigging which is inclined across the plane of the plate to which the thimble is attached, whereby the standing parts of the loops are brought into line with the other of said plates, and means to fasten the said plates together.

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PUBLISHERS' NOTICE.

MR. GEORGE L. SMITH and Mrs. I. B. Smith take this opportunity of thanking their friends in the marine fraternity in both Cleveland and Chicago for many acts of kindness shown in their time of affliction. The business management of the MARINE RECORD will be conducted by Mr. Charles E. Ruskin, who has performed the duties of the position for more than a year past, and who is personally well-known to most of our patrons.

WARNING TO VESSEL MEN.

THE attention of vessel men is drawn to the fact that there is not enough opposition showing at Washington to the Woodman and Phillips bills, both of which purport to regulate the number of men necessary to man vessels of various classes. These bills are both pernicious in character, but one or the other of them may be reported by the House Committe on Labor, if care is not taken to make such representations as will show their absurdity and hurtful character. These bills cannot well be opposed by telegraphic protests; but every vessel man can see for himself their evil effect upon every class of tonnage, and, after perusing carefully the text of these bills as given in previous numbers of the MARINE RECORD, the owner of boats of every class should write to his Repesentative in the House a clear, concise statement of the damage that would result from the passage of the Woodman or Phillips bill. There are features in each that are attractive, and not unreasonable; but they are saddled with provisions which would hinder boats of the lake fleet from getting men legally at any price, and would result in the loss of thousands of dollars, without benefiting anybody. The bills can easily be defeated if proper efforts are made, but vessel men must not take too much for granted, nor rely too implicitly upon indefinite assurances.

INDICATIONS are that the Detroit River bridge bill will be reported favorably to the senate by the Committee on Commerce. It may pass that body, but is pretty certain of death at the hands of the Representatives of the people.

CHANGES IN LAKE LEVELS.

While there is great unanimity of opinion in regard to the benefit which would result from the placing of a dam across Niagara river at the foot of Lake Erie, the subject seems imperfectly understood by tne majority of the people, who hold almost too closely to the opinion that "water always seeks its level." The old adage is literally true, but it should be remembered that what is sought is not always found, and that water does not find its level when external circumstances overcome its natural fluid tendencies. In other words, Lake Erie has several feet of fall between is extreme western and eastern ends. The idea held by some that a dam would only cause the lower end of the lake to rise, to the destruction of low-lying property adjacent, is not justified by the experiments of competent engineers, who argue that the effect of a dam in Niagara river would be felt as far back as the foot of Lake Huron. Lake Erie would probably no longer have the same degree of fall with a dam as without, and the current would be slightly checked by the reduction in the gradient of fall; but the water in the rivers, while, as stated above, would be checked in a small degree, would flow into Lake Erie in but slightly diminished volume, and this would result in the water at the head of the lake remaining at practically the same height above the level at the foot of the lake as is the case with no dam in existence.

Talk of damage to property is an objection bordering on absurdity. The present subsidence from high water marks would not be restored by any dam which it is proposed to build, and the Buffalo property which has been flooded a few times by high westerly winds lies in a quarter of the city which would, or could, be amply protected, instead of menaced by such a dam. Any one who has taken advantage of the subsidence of the water to build close to it will, as he deserves, come to grief in the same manner as the other man who builded his house upon the sand. The cause will not be the same, but the ancient men referred to probably made a remark which had a similar sound.

A writer who signs F. J. M., has contributed a couple of short papers to the Gladstone Delta on the causes of the fall of water in the lakes, and his reasons point out with much clearness that some artificial means for raising the water is not only possible, but necessary. He states that while the reduction in precipitation is without doubt, to a certain degree the cause of the fall, there is another reason, one which was only suggested by a remark contained in Senator Brice's report, that special encouragement should be given to the planting of forests along the shore. F. J. M. says:

The indirect source of supply, rainfall as collected in the drainage districts (of the feeding rivers) and forming what might be called the indirect supply of rainfall, has depended and does still depend upon the conditions of the soil for furnishing these streams. These conditions are changing to an alarming extent every year by the cutting of the timber. We have noticed in many districts, streams which were fifteen years ago sufficiently large to run logs in and which are to-day almost dry. This comes from the fact that the country drained by those streams has been denuded by the timber, thereby exposing its surface to the sun, thus keeping the soil fitter to absorb than to give off any of the rainfall. We know personally of many localities where swamps have existed that were almost impassible, owing to their wet condition, from which the timber having been cut and the decaying vegetable matter burnt, are dry, barren spots today.

Taking 8,000 feet to the acre as a fair average of growing timber, we find, on a conservative estimate, that 250,000 acres of land are being striped of their timber every year, thus exposing more surface to the sun making the evaporation much greater, and putting the soil in such a condition as to absorb such rainfall as comes. In obtaining these acreage figures, we have made no estimate of the large sections burnt over every year.

By the cutting of the timber and the exposure to the sun, the snow in spring is melted very rapidly and comes down the streams in floods, and passes away in a short time. Thus for a time in the early spring there is a tendency to raise the level; but this is temporary, as the condition of the ground is such, thns exposed to the sun, that it cannot absorb much by reason of the frost still remaining, for it is found that where timber grows thickly the snow goes slowly, giving the frost a chance to come out gradually enough to keep the ground saturated and preserve a source of supply. Where the timber has been cut the snow passes off before the ground is in a condition to receive and retain any portion of it, thus cutting off the continued source of supply from this direction, which exists in a heavily timbered country.

Another point which will possibly excite some derision at first, but which certalnly counts for more than might be supposed, is that the majority of the boats which have the largest displacement go up the lakes light and come down with deep loads. Their full bows of course drive much larger quantities ahead of the boats when loaded down than when they are hardly in the water at all, and the current started by what is popularly termed the suction of the steamer is also an important factor. It does not amount to much in the case of one vessel, but the constant operation of 1,000 or more of the class referred to must have an effect which is likely to be under, rather than over estimated. The writer also states that "Lake Erie's indirect supply has suffered more than that of the other two. The drainage district of Erie is being cleared faster in proportion to its size, the demands on Erie have increased more and the increase in Niagara's channel is constantly growing; so, taking everything into consider ation, the increased demands upon Erie have kept pace with the increased supply from Huron and Michigan and the level is lower from natural causes just as that of the latter. If the income is decreasing (and it is) and the outgo is increasing (and it is), it is simply a matter of time when we must land on the bottom."

Ths writer concludes his paper as follows, and promises to write further, suggesting measures of relief:

In considering the extreme low water of to-day in the lakes we believe that the natural laws of fluctuation are largely if not almost entirely responsible for the extreme low water; for our statistics show that at stated periods the lake level has risen and fallen, and that with each period, a lower mark is reached by both high and low water; we have, however, just passed an unprecedently long period of falling water; and the question arises, are the natural laws alone responsible for this? The writer hopes that they are, but on considering all of the various conditions, we cannot but feel that the lake levels are being lowered much more rapidly now than at any former period; and that this state of affairs is likely to grow worse.

IN MEMORIAM.

"Always suddenly they are gone."

To the Editor of The Marine Record:

Death, ever intruding among our circle of acquaintances, friends or dear ones, is and always has been in our midst, and yet with his coming to anyone whom I have known it seemed to me, "Always suddenly they are gone." And though my friend Irving B. Smith was a long time ill, still I woke of a sudden to find him gone. I miss him, knowing that life is the more tolerable, the more full of learned sympathy, and thereby of joy and value, for the very existence of such a man. And those whom he has upheld and made happy, wife, mother, father, all have the sympathy in their bereavement of every man Mr. Smith ever met in the walks of social and business life that were his, and which he trod manfully and successfully to the end, a man among men. He went out into the unknown calm and hopeful, with an all-sufficient faith to enable him to say: "Thy will be done."

HARVEY C. BEESON.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD by George F. Stone, Secretary Chicago Board of Trade, February 22, 1896.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Albany	.....	8,000	65,000	.....	.....
Baltimore	130,000	1,010 000	46,000	96,000	.....
Boston	721 000	200 000	12 000	.....	.....
Buffalo	2,200.000	105,000	25,000	410,000	912,000
" afloat	259,000	.....	223,000	.....	250,000
Chicago	20,385 000	3 429.000	966 000	323,000	20.000
" afloat	188,000	4,015,000	685,000	.....	.....
Cincinnati	17,000	4 000	16.000	20 000	56,000
Detroit	291.000	23.000	7,000	11,000	8,000
" afloat	.....	.....	.....	.....	.....
Duluth and Superior	11,135.000	85,000	896 000	177.000	153,000
" " afloat	512 000	.....	.....	.....	.....
Indianapolis	97.000	5 000	.....	.....	.....
Kansas City	1,386,000	6.000	33,000	27.000	.....
Milwaukee	405 000	2,000	.....	210 000	40,000
" afloat	176,000	.....	120 000	.....	.....
Minneapolis	19 979 000	53 000	504,000	121 000	254,000
Montreal	722 000	7,000	193 000	3 000	48,000
New York	3,718 000	351 000	1,712.000	19,000	110.000
" afloat	241.000	33,000	225,000	.....	158,000
Oswego	.....	.....	.....	.....	90 000
Peoria	13.000	242 000	270 000	4 000	1,000
Philadelphia	453,000	716 000	85.000	.....	.....
St. Louis	1,231.000	304 000	586,000	3,000	3,000
" afloat	.....	74,000	.....	.....	.....
Toledo	727.000	597,000	131,000	117.000	.....
" afloat	.....	.....	.....	.....	.....
Toronto	25,000	.....	76,000	.....	27,000
On Canal	.....	8,000	12,000	.....	.....
On Lakes	.....	.....	.....	.....	.....
On Mississippi	.....	239,000	27,000	.....	.....
Grand Total	65,011.000	11.516,000	6.918,000	1,541 000	2,130,000
Corresponding date 1895	79,476,000	12.969 000	6,772 000	340,000	1.522.000

Hingston & Woods, of Buffalo, are deepening the channel for the car ferries at Port Dover.

SHIP BUILDING AND REPAIRS.

GOES TO THE UNION.

Lake shipbuilders who filed bids with the Standard Oil Co. for the steel oil tank barge which is to be completed in the spring of 1897, have been anxiously awaiting the result, as the bids were to be opened last Thursday. Manager Edward Gaskin, of rhe Union Dry-Dock Co., announces that his company has secured the contract, the price not being made public. Her dimensions are to be 254 feet between perpendiculars, by 40 feet beam and 33 feet depth, with a capacity of about 24,000 barrels on 14 feet draft. She will carry four masts, and will greatly resemble the two barges now in service on Lakes Michigan and Superior, each of which has about half the above named capacity. These two will be taken to salt water at the close of next season. They were originally intended for the ocean trade, and were built on this plan, but it was thought best to use them on the lakes for one or two seasons. The new barge will have a water bottom, with which the other two are not provided.

The Wolvin syndicate of Duluth has completed arrangements with the Chicago Ship Building Co. for a third steam ship for that line, which will this year operate the Zenith City and the Queen City, the latter not being yet launched. No disposition is shown by these people to enlarge on former dimensions, the figures given at present being 406 feet keel, 48 feet beam, and 28 feet depth.

Nothing more is heard now-a-days of the Russian ferry boat for Lake Baikal, but this is no indication that the matter has been dropped. The Consul General of the United States at St. Petersburg has sent in an exhaustive report upon the trans-Siberian Railway to the State Department. According to this the road to each side of this lake is not to be completed until some time during 1898, and such work is usually slower tnan estimated. Consequently if the Detroit Dry-Dock Company did not receive an order from the Russian Government for fifteen or eighteen months, they would have time to build the boat, provided the timber was previously seasoned. The Russians would probably look out for this, as the boat would nave to be built on Lake Baikal. Her run will be only about 20 miles from one railroad terminal to the other.

The Ashtabula Passenger and Fishing Co. are about to lay the keel for their new passenger tug at Ashtabula Harbor. The frame and other parts of the engine are already bgilt at the McKinnon Iron Works, that port. She will be ready by June 1.

The Mutual steamship built at the Globe yard, was launched last Saturday, according to announcement. Five minutes before launching time the name Coralia was definitely decided upon, and she was so christened, although the name did not appear upon her stern. She was namad in honor of Mrs. L. C. Hanna, wife of the president of the Mutual Transportation Co.

There will be a double launching at F. W. Wheeler's shipyard, West Bay City, next Saturday—the Eddy-Shaw steamship City of Bangor and the Roby syndicate steamship L. C. Waldo.

THE SHENANGO NO. 2.

The car transfer steamer Shenango No. 2, which, after failing to get into any of the Cleveland dry-docks, because of her excessive beam, left Cleveland, at 3:35 on the morning of Wednesday the 12th inst. At 11:40 a. m., when five miles west of Pelee Island light, she lost her forward wheel and was soon in a mass of floating ice. She received assistance from a volunteer crew consisting of James E. Quirk, keeper of Pelee Island light, Thomas Quirk, and Samuel Graham, who after visiting the boat, went ashore and notified the owners from Kingsvill, Ont. The services of the Detroit ferry steamers Promise and Fortune, were secured for $500 for each, including a steam pump, hawser, etc., and they left Detroit. The expedition left Detroit early Tuesday evening, the 11th, in charge of President Walter E. Campbell, of the Detroit, Belle Isle & Windsor Ferry Co., and then started for the Shenango, 50 miles distant, cutting ice all the way. They were detained at Amherstburg and Bois Blanc Island until the 20th, but passed Colchester at noon that day. They reached the Shenango at 5 o'clock that evening, and soon had her in tow. The return trip to Detroit was slow, and that city was not reached until Sunday afternoon, the 23d.

The Promise did all the ice-breaking on the way down, the Fortune following in her track, ready to come to her relief in case of accidents, none of which occurred. A ladder was hung over the bow of the Promise, and her plates were closely examined every little while; but she showed no damage, although several huge windrows of ice were encountered. On the return trip the Fortune remained a iittle ahead of and alongside the Shenango as she towed behind the Promise in order to widen the channel for the larger boat. It was fortunate that the weather did not moderate before the job was completed, for had the Shenango been freed from the ice she would would probably have been driven ashore by the high winds which prevailed. The Promise circled around the Shenango twenty-five times before the ice was considered sufficiently broken up.

Mr. John Craig, of Toledo, accompanied the expedition. He has no need to be ashamed of the trouble which the two Shenango boats have encountered during the last three weeks, as they have had an unprecedented amount of hard luck. The No. 2's wheels were broken and she was thus rendered helpless as a barge. She was not originally built for such ice as makes in and around the islands, which is equal to that encountered in the Straits, where boats of nearly three times the cost are required. The Shenango boats have been a commercial success on their routes; and there is no doubt that so long as their wheels are in action, they will get through the ice without difficuity. They are at a further disadvantage, however, because of the shallow water at Port Dover, which limits their draft to 12½ feet, and consequently reduces the pressure which the heavy hulls can bring to bear upon the ice.

The cost of the rescue was $5,000, and while the ferry steamers sustained no damage, the ferry company are of the opinion that considering the wish involved, they did the work too cheaply. The Shenango, when placed in dry-dock, showed little damage as the result of her experience in the ice. She will need new wheels all around.

A late report from the Shenango No. 1, which has been having considerable trouble due to low water, is that she is frozen in an ice floe eight miles North of Erie. The No. 2, will get her new wheels and be out of dock by Friday, when she will go to the rescue.

OLD AND NEW WORK AT DETROIT.

Special Correspondence to The Marine Record.

DETROIT, Mich., Feb. 24, 1896.

At the establishment of S. J. Hodge & Co., the Norseman has had a general over-hauling, this being almost completed. They are putting a new fore-and-aft compound engine in the Marquette.

The new triple-expansion engine for Connors' yacht at Buffalo, has been completed and shipped. The new 18-inch triple-expansion engine for the tug being built by Craig Shipbuilding Co. of Toledo, is under way and soon will be furnished. It is for the tug Fisher of the W. & M. line, and measures 18, 30 and 50 in. by 36. in. stroke.

At the Oades Shipyard the yacht Wayward, which has been having new stem, stern, ribs and planking put in, is now completed, and will be ready for spring. The little yacht Alma C. has been having a new compound engine and is also completed. The low water retards repair work at this yard, but just as soon as it rises they will have a large amount of repairing for the government and others.

At the Frontier Iron Works the two new triple-expansion engines for Capt. James Davidson, of West Bay City are fully under way.

Capt. Ford, of Wyandotte, has just placed a large order for casting with this concern, which has some renovating work on other engines

The Detroit Dry Dock Co. have a large force of men on the C. & B. boat, which will be ready for the summer trade. They have completed the repairs on the Northern Wave, a $75,000 job. She left the dock Saturday. The composite steamer Fayette Brown, which is on the Twenty-fourth St. dock, has been cut, pulled apart and has the new frames in. She is almost ready for plating,

The big boats at the Wyandotte yard are nearly all well under way and work is progressing night and day, C. R. Jones' boat has bottom and frames up. The Detroit syndicate boat has her water bottom finished and frames up. The first of the Rockefeller boats has been started and the material is there ready for the second. The Detroit Dry-Dock Co. have contracted to supply fifteen ships with the popular Howden hot draft.

J. K. C.

GENERAL REPAIR WORK.

CHICAGO.—At Miller Bros.' shipyard the steamer Geo. W. Morley is in dock for a new shoe, new bottom planking, and recalking to the light water mark; the tug Monitor is in for some general repairs and recalking.

At the Chicago Ship Building Co.'s shipyard the steamer Havana is receiving new deck beams and decks new shelf piece and stringers and new wale strake and will go into dock for recalking. W.

MANITOWOC.—At H. B. & G. B. Burgers' shipyard the new steamer building for the Goodrich Transportation Co. is being hurried along by a force of nearly 100 ship carpenters. Her frames are all up, and planking will be proceeded with as quickly as possible, so that she will be completed by or soon after the season commences. The Goodrich Co.'s steamer Atlanta is receiving her two new Scotch boilers, 10½ by 10½ feet, to be allowed 140 pounds steam pressure, built by Mohr & Son, the well-known boiler makers at Chicago. The boilers will be put farther forward than her former boiler, and will be fired from the after end. The boilers and coal bunkers will be placed between two watertight bulkheads, and the steamer will have one more bulkhead than the United States government calls for. The Atlanta was in Burger & Burger's dry-dock and had her after body remodeled for a distance of 95 feet aft, the planking being taken off and extra frames put in and planked over, which has increased her bearing and buoyancy, so that with her boilers placed farther forward she will, when completed, draw about two feet less water than formerly, which will make her better adopted for getting in and out of ports where bars and shallow water exist.

The tug North Muskegon is on the boxes receiving a thorough rebuild; the tug Monarch is to be converted into a double decker with cabin on top.

The Manitowoc Steam Boiler Works are building a marine boiler 6½ feet diameter, 12 feet long, to be allowed 240 pounds steam pressure, for the tug North Muskegon, and a marine boiler 7 feet 4 inches diameter, 12 feet long, to be allowed 140 pounds steam, for the tug Golden.

The Goodrich Transportation Co.'s engineers are at work fitting out the machinery on the company's steamers Virginia, Atlanta, Chicago and Muskegon and tug Arctic. W.

MILWAUKEE.—The Sheriffs Manufacturing Co. are building a high-pressure engine 22x26 feet; also a 10-foot diameter wheel for the Goodrich Co.'s new steamer; a 5-foot diameter wheel to be shipped to New Orleans, and a 10-foot diameter wheel to be shipped to Mobile.

SHEBOYGAN, WIS.—Capt. Duncan Buchanan has had ship carpenters at work all the winter on the schooner Sunrise, giving her a thorough overhauling and recalking and when she receives some coats of paint and is fitted out she will be the handsomest schooner on the lakes. W.

CLEVELAND.—The weather is again in a state to permit of better progress on building and repair work. The Cleveland Dry-dock Co. have nothing in the dock, but are making good progress with the rebuild of the Nellie Reddington. The Chase Machine Co., are building a new deck outfit for this schooner, consisting of boiler siphon, and windlass.

At the Ship Owners' dry-dock, the Olympia completed repairs, and the fish tug Smith is receiving an overhauling. The Fountenac has been receiving new wall strakes at this dock. The Chase Machine Co. covered the boiler and pipes of the Fountenac six years ago, and are now making the first renewal, which speaks well for the material they use. They are also covering the Wade's boiler.

The boiler which the River Machine and Boiler Co. are building for the steamer Alcona is 10½x17 feet, of the firebox type, and suited for 120 pounds working pressure. They are also building a firebox boiler 8x15 feet for the Dewhurst tug building at the Ship Owners' dry-dock. The engine for this tug is being built by Clough & Witt, and is of the high-pressure type, measuring 22x24 inches.

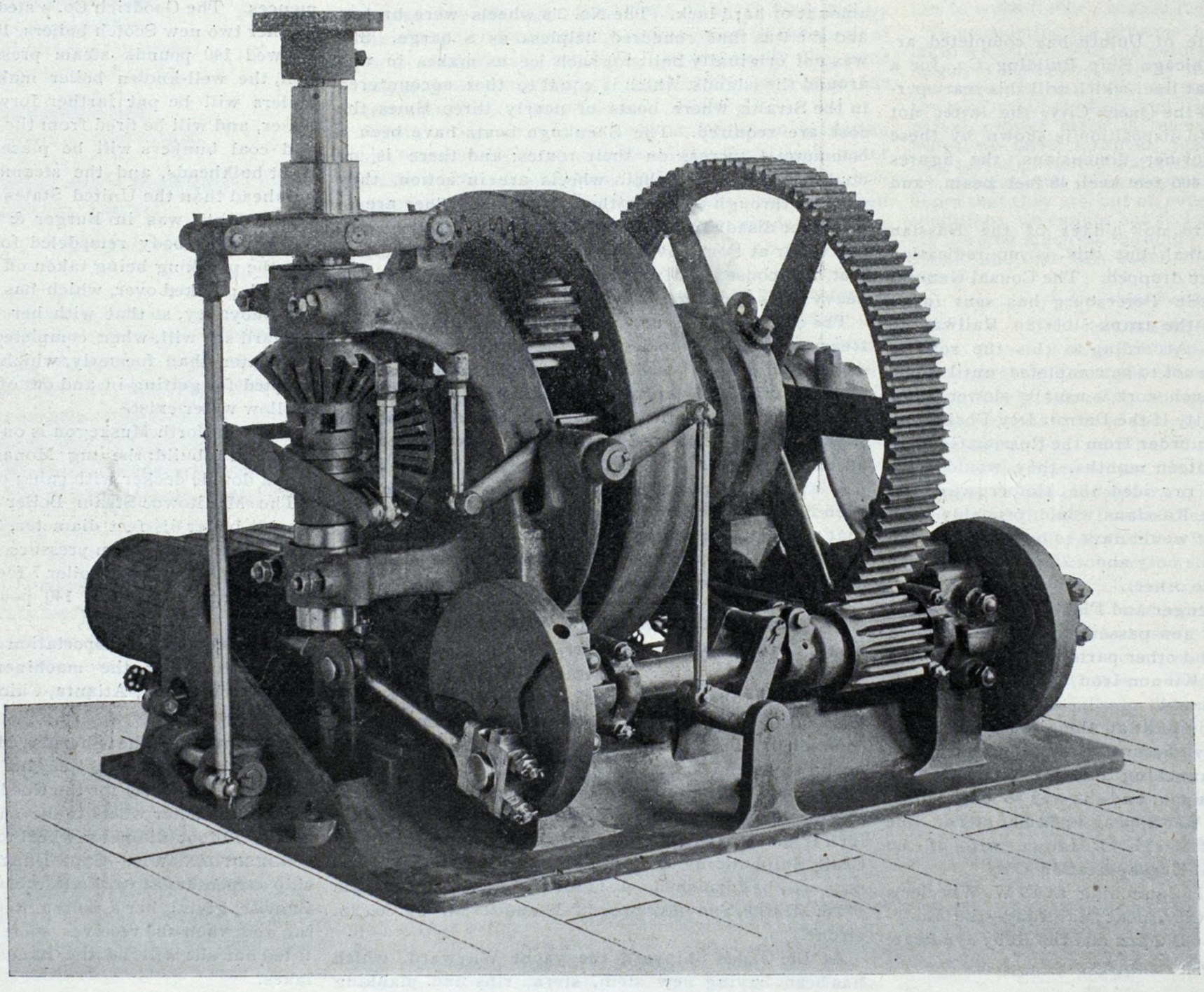
THE WORK OF A STEAM STEERER.

All vessel men will agree that next in importance to the propelling engine on ship-board, comes the steam steerer. The handling of the ship at all times, and very often her safety from destruction, depend upon the unfailing reliability of the steam steerer. It is therefore well to keep an especially bright lookout on this item in the equipment of the ship. The standard of excellence demanded in the steam steering engine should be the very highest attainable, because everything less than the best in this important auxiliary wonld be an open invitation to disaster.

That a good thing once attained should be well cared for, goes without saying. A captain or engineer who would neglect his steam steerer and steering gear, would neglect running lights or water gauges and deserves decapitation. There is no navigation on the globe more severe in its continuous demands on the steam-steering engine, than that existing on the Great Lakes. Here we find all the conditions which have led to the general adoption of the steam-steering engine, but we find them intensified and multiplied to a degree not approached in any other part of the world. The ports are narrow at the entrance and consist mostly of tortuous, dredged out creeks, covered with drawbridges. The numerous shoals and bars have narrow and often crooked channels dredged over them, through which two continuous lines of vessels pass at full speed in opposite directions for nine months of the year. The canals and locks on main lines of trafic are crowded with the same two continuous lines of ships passing in opposite directions as best they can—pushing, wriggling, crowding, colliding.

It would seem that all these—the tortuous ports,the narrow channels, the locks, and the canals—were enough to cry aloud for the best steering engine in the world; but this cry becomes a demand, impossible to ignore, when we consider that all this traffic is permeated with that restless, risky, rampant spirit of "bull push" which has built up the great Northwest. The instructions issued to a lake captain are analogous to those given by the Quaker to his son—"get there! honestly (safely) if thee can; but get there!" These conditions are doubtless due to the extreme competition, the short season and the system of insuring all risks with the underwriters; but it matters not how they have arisen, they exist, and their existence has evolved and brought into existence with them the best steering engine in the world.

The "Globe" steerer was born and raised under the conditions above described aud as a natural result is eminently fit to do its work anywhere and on any ship that floats. The illustration and description following will introduce this trusty little engine to those not already familiar with its faithful qualities. To those whose business it is to guide and push their 5,000 ton steam shuttles back and forth through the mazy treacherous web of commerce on the Great Lakes, the illustration will call to mind a friend both tried and true.



THE GLOBE STEAM STEERER.

The steerer is self-contained, the base forming a drip pan and having outer bearings, complete, all ready to bolt down to deck. The steerers are built in four sizes, to suit the different demands. All the working parts are adjustable for wear and provision is made for taking up all lost motion. The gears are cut and work almost noiselessly. All parts of the valve motion are connected to the engine direct, are made as simple as possible, and are positive in their movements; they are not affected by the springing of decks. The steam chests, valve stems and piston rods are all in plain sight and easy of access. The valves are of the slide pattern and will always remain tight. The drum is grooved for chain and chains are led either above or below the drum (depending on which deck the engine is placed) and to the ship's side, thence running aft and connected to sliding blocks or to the usual hand stearing purchase. In the wheel house are placed two large wooden steering wheels, coupled together, either of which can be used to steer by steam or by hand, and there is no clutching or unclutching of wheels, when changing from one motion to the other—they are always ready. The change from steam to hand, or vice versa, can be made instantly in the wheel house, and there is no danger of blocking, as the shifting parts cannot foul each other or break the engine.

The motion for steering by steam or by hand is conveyed through one upright shaft, thus making the steerer complete in itself, without a complication of rods, rope belts, etc. The movement of the steering wheels one-sixteenth of a spoke will start the engine, which movement is sufficiently close to steer by steam at sea. To move the rudder from hard-over to hard-over, the engine makes from forty to fifty revolutions, using thirty-five pounds steam pressure, and at this speed the steerer has ample power to put the rudder in any position at the maximum speed of the vessel, and as there is no racing backward and forward, it will not wear itself out nor consume large quantities of steam. Complete arrangements for oiling are provided and at accessible points. The indicator is located at the top of wheel stand, works positively by gearing, and is not liable to become disarranged. A small binnacle lamp is placed on the wheel stand, throwing light on the indicator. bat in no way interfering with the lights in the binnacle box. Automatic stops and signal bell are provided for the purpose of checking the movement of the wheel and warning the wheelsman at hard-over positions of the rudder. The entire apparatus is compact in design, thoroughly and substantially built of the best materials, and has a neat and attractive appearance. Not the least of its merits is its almost absolute freedom from noise in operation. This steerer is manufactured by The Globe Iron Works Co., of Cleveland.

THE LOOKOUT IN THE HOLD.

The eophone is a sound-catching instrument, and with it one can determine with much accurracy, in a fog or darkness. the location, both as to direction and distance of any sound. It is formed of two bell-mouthed sound receivers, placed one on each side of a sheet of metal or other material extending some distance in front of the receivers. A tube from the left hand sound receiver is placed at the left ear of the person operatting the eophone, and a tube from the right hand receiver at the right ear. When the sound is heard with equalplainessin both ears the instrument is pointing at an angle with direction of the sound. It is the invention of Frank de la Torre of Baltimore. The sensitiveness of the instrument is remarkable. The ripple of oars has been detected in the night time when the rowers were trying to row as silently as possible. One time a bell buoy was picked up in a dense fog, after being located by the eophone from a distarce of a mile. Another experiment was the chasing of a tug by the sounds of its whistle, the eophone operator being blindfolded, and the vessel pursued twisting on its course in every way possible in the effort to elude its pursuer.

The eophone is attached to the top of the pilot house, the tubes from the receivers being carried inside the house for use by the pilot. The instrument can be turned in any direction by the operator below. Experiments hhve been made with it by officers of both the army and navy in the United States Lighthouse Departmene, and it is predicted that its use will become universal.

Alexander Graham Bell's latest mechanical device is in the line of practical utility, like most of his inventions. It is intended for the fishermen who are frequently cut off from their vessels by fog, and lose their lives as frequently by lack of drinking water as by exposure. The invention consists of a glass cylinder or bottle, through the neck of which is a small rubber tube. The glass is submerged, and a brass cylinder, acting as a bellows tgrough the rise and fall of the waves, pumps the atmosphere into the submerged bottle. There it becomes condensed, and a supply of fresh drinking water is always to be obtained.

Horace See is a member of the regatta committee of the New York Yacht Club.

TRANSPORTING A LARGE STERN FRAME.

Several weeks ago the RECORD contained a short article in reference to a large stern frame which the Paterson Iron Company, of Paterson, N. J., was building for a steamer building for the Cromwell liner by the Newport News (Va.) Shipbuilding and Dry-Dock Co., and which was so large that it was necessary for the Erie Railway Company to use cars on both tracks of its double line, running abreast, to transport the stern frame to Jersey City, where it was transshipped by boat to the yard.

The outside measurements of the frame are 21 ft. 2 in. by 28 ft. 10 in. The inside dimensions of the rectangular portions are 8 ft. 3 in. in width and 22 ft. in height. The hub is 37 in. in diameter and is 18 in. thick. All the other sizes are indicated on the plan view, Fig. 2, which shows the frame mounted on an ordinay platform car for transportation.

The frame was forged under a 10-ton steam hammer by the boss hammerman of the company, Richard R. Bergin, while the blacksmithing was done by the boss smith, William Le Guire, the entire work being done under the direction of Charles E. Backwith, the superintendent.

The frame was so large that it was necessary, as stated above, to use both tracks of the Erie Railroad to transport it to Jersey City for shipment by boat to Newport News. This wou'd have been a simple matter if it had not been for the projecting foot B of the

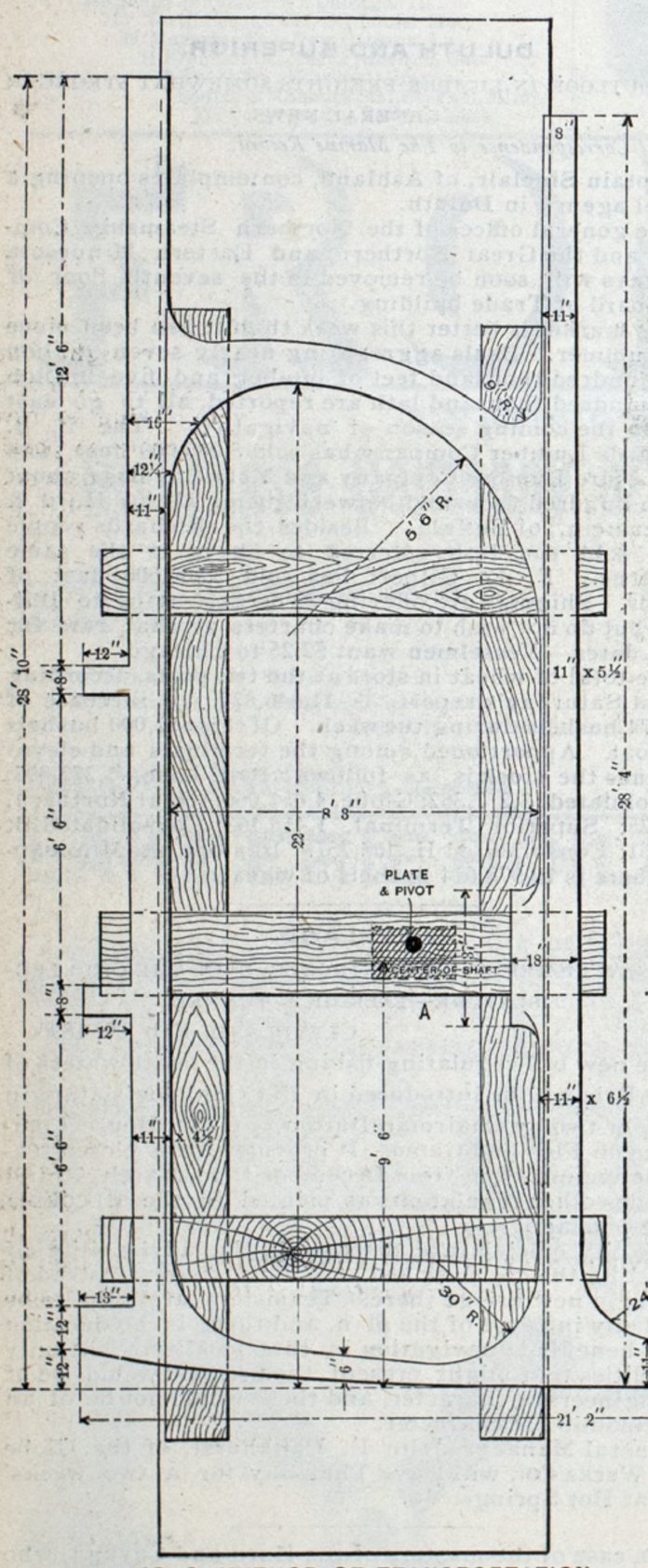
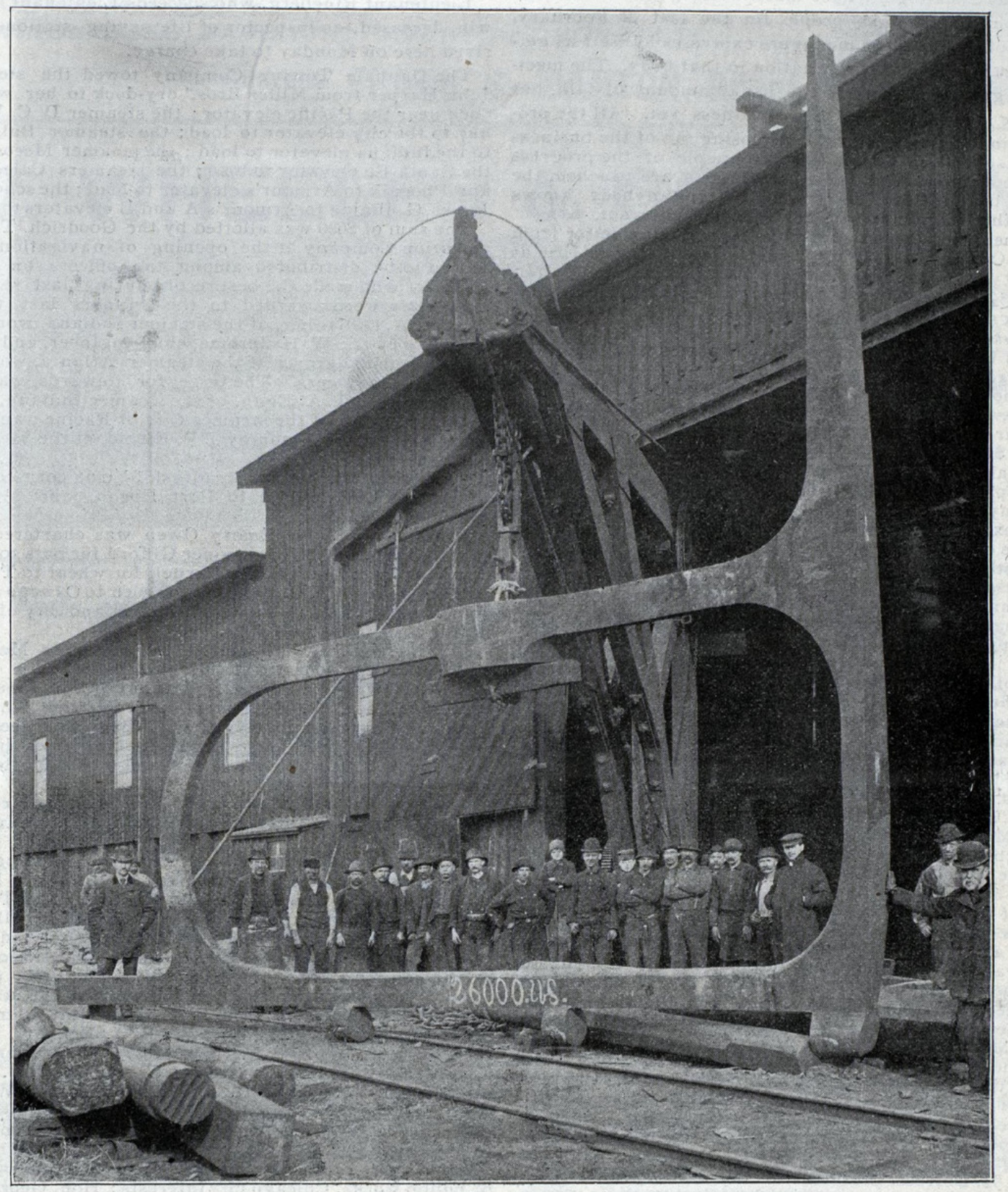


FIG. 2—METHOD OF TRANSPORTATION.

frame, which made the side dimensions over 22 ft. wide. Owing to this peculiarity of form it was found expedient to place the frame on a turntable on the car with the pivot at A, Fig. 2. Arranged in this way, the foot was the only part of the frame that extended over more than one track. The turntable permitted the frame to be swung around so that in taking it out of the yard to the main tracks certain signal posts could be cleared. On top of the car along each side was laid a heavy timber, upon which were secured three cross timbers. The plate and pivot were placed on the center cross timber at the point indicated in Fig. 2. A special engine and crew conveyed the frame to Jersey City. Since the frame would occupy both tracks of the Erie, it was essential to move it when the traffic was smallest, and when the regular trains would be least interfered



A LARGE STERN FRAME—FIG. 1.—GENERAL VIEW.

with. The start was therefore made at about 1:30 o'clock on the morning of December 16. The time in transit was about three hours. No trouble whatever was experienced on the road.

We are indebted to the Railway Review, of Chicago, for the use of the illustrations.

It hardly appears very long since it was said that the days of the 200-ton d. w. carrying steamers were passed, and that the 4,000 tonner was the one to earn dividends, more particularly as regards Eastern trade. Now we are told that it is almost impossible to send a steamer of 4,000 tons capacity through the Suez canal and show any profit at the end of the voyage, and this state of things is all laid at the door of the very large carriers now trading to the East.—Philadelphia Commercial List.

Derrick was indeed nothing more exalted than the Tyburn hangman of the early part of the seventeenth century, and his name figures frequently in plays of the period. For more than a hundred years he gave his name to gibbets, whose elevating powers were applied in a more useful direction in the modern "derrick."

ICE BREAKERS.

In the Revue Technique attention is drawn to a type of ice breaker which has been developed in the Netherlands. The information is evidently taken from journals of that country, but no definite quotation is made. Mr. Schurman is often referred to. The ice breakers, of which quite a number have been in use during the last five years, resemble the snow plows of locomotives, and are fixed to suitable vessels. The breaker is a sort of iron beak, wide, and rounded on the bridge, or more pointed with a sharp edge on the bridge, built up with strong iron ribs, forming a hollow spur which floats by itself, and into which the vessel slips from behind. The breaker is fixed to the vessel, rope and other things being interposed so as to make a tight, yielding fit. When in position, the tip of the beak will be under the water, and the beak is to run under the ice, and to lift and break it. This is deemed preferable to the opposite plan of crushing the ice by the weight of the vessel gliding on to it, because in the latter case, the broken slabs rebound against the vessel and close the channel up again behind, whilst here the ice is more thrown sideways. More power must be needed in the former case, because the ice has to be raised, when it will no longer be borne by the water. Mr. Dibos does not touch upon this point. There is no doubt that these ice breakers have proved very suitable on the canals and in the ports of the Netherlands. One of them kept the Yop, the arm on which Amsterdam lies, open during February, and the Isploeg opened in 1891 a channel 45 miles in length in a day and a half. The power is not stated. The propellers of these boats are protected by bustles.

The Toledo (O.) Drop Forge Co. has been incorporated with a capital stock of $30,000.

NEWS AROUND THE LAKES.

BUFFALO.

FREIGHT ARRANGEMENTS FOR NEXT SEASON MOVING ALONG SLOWLY—CANAL MEN AGAIN ORGANIZE—WATER RISING.

Special Correspondence to The Marine Record.

Buffalo, Feb. 25, 1896.

There is altogether too much holding off on the part of some of the lake people for the last of February. One of the lake-line managers expresses himself as getting anxious over the situation in that body. The meetings go on and there is the usual amount of talk, but there is not a word of new business yet. All the proceedings have been over the closing up of the business of last season. If this is a fair sample of the progress to be made when the new percentages are reached, the first boat will be going out before anybody knows whether there is to be a new association or not.

There is nothing done in lumber yet, but a letter from Bay City puts down the Duluth rate to Lake Erie at $2.25 with confidence, but does not think that more than $1.62½ can be got from Lake Huron points. About next week something will be done, it is thought, but that has been the word for some time.

As to ore Cleveland is better posted than Buffalo, though it may be that people there will give a closer opinion outside than they will at home. A letter from a Cleveland broker is sure of the coveted $1.25, though I hear one or two vessel men here say that they might take $1 15, though they have refused $1 10.

Coal men are doing nothing. They say the production promises to be small early and that there will not be any eagerness to rush hard coal forward. They do not expect much to be left over anywhere. The late move of the Delaware & Hudson Company to go out of directly handling it in Chicago seems to be in line with what most of the other lines have done. The Lackawanna went out several years ago; also Scott & Co. Hereafter the D. & H. coal will go to the Crescent Coal Company, of which Mr. Bogle, the former agent of the line, is president. The Pennsylvania Company will go out of the dock busines in Chicago entirely if the docks can be sold, as rail coal pays best.

The canal men are the most active of all. After a continuous session of nearly a week they have organized as a boatmen's association with Louis Schoellkopf, president; W. F. O'Rourke, vice-president; W. H. Newcomb, secretary; and G. D. Gilson, treasurer. These, with Ira M. Rose, of Tonawanda, Ira Betts, of Phoenix, and Michael Doran. of Durhamville, will make up the freight committee. The addition of the last three names to the list is quite significant, as they are the heaviest boat builders on the canal and hold mortgages on a great many boats. As the roads have made a rate of 5 cents on wheat to New York it is expected that the opening rate on wheat by boat will be 4 cents. Quite a considerable amount has been offered, but the rate has not yet been made.

The retirement of M. M. Drake from the management of the Kelderhouse syndicate boals, America, Brazil, and Maytham, was rather made necessary by his going on the board of public works, though it is not a secret that there are other people who believe they can get as much money out of the boats as he did. John Kelderhouse will now manage the boats in person. They are all good ones and capable of making money when anything does.

W. H. Defrees, president of the Muskegon Terminal Railway Company, was down here last week, in the interest of a new cross-lake line of car ferries from Muskegon to Milwaukee. He seemed pretty sure of the line, said that connections were in sight,and that he was looking for some help in the matter of harbor improvements at Muskegon. He seemed to think that the Lake Carriers' Association could do something and paid a visit to Secretary Keep, probably not being aware that the body considers such matters too local to look after.

Hingston & Woods have gone to pumping on the steamer Shrewsbury again, after waiting most of last week for the cold weather. The boat is having things a good deal her own way and has gone down once or twice after she was partly raised.

It is reported that Capt. Brown, marine superintendent of the Northern line, fears an attack of appendicitis. He has not been able to do much work for some weeks and often does not come down town at all.

Grattan & Jennings, who are at work on the rebuild of the Erie coal trestle, are pleased to report that they can easily find room for men enough to finish the job before May. They now have about 250 men employed. When done the trestle will have 88 pockets and will be one of the finest in the harbor.

Everybody is taking a long breath on account of the raising of the boycott against the fueling with the hard coal shippers and it does not look as though there would be an occasion for another set-to of the sort in a long time. There will be a new fueling scow this season put out by the Buffalo, Rochester & Pittsburg Company, which with the Hedstrom, Pickands-Mather and Wick scows, ought to make a full fleet.

There is some reason for hoping that the lake levels will be at least a trifle higher than they were last season. The report for Lake Erie last month shows only 1.9 feet below the normal on the average, while December averaged 2 1. The water in Buffalo harbor has been unusually high for some time.

J. C.

CHICAGO.

A LARGR DELEGATION SETS OFF FOR WASHINGTON IN THE CITY'S INTEREST—THE FREIGHT SITUATION—THE GRAIN FLEET LOADING.

Special Correspondence to The Marine Record.

CHICAGO, FEBRUARY 26.

Lieutenant Rineberg, who succeeds Lieutenant Baldwin, deceased, as inspector of life saving stations, arrived here on Monday to take charge.

The Dunham Towing Company towed the steamer John Harper from Miller Bros.' dry-dock to her winter dock near the Pacific elevator; the steamer D. C. Whitney to the city elevator to load; the steamer Bulgaria to the Indiana elevator to load; the steamer Mecosta to the Santa Fe elevator to load; the steamers Caledonia and Phoenix to Armour's elevator to load; the schooner James G. Blaine to Armour's A and B elevators to load.

The sum of $600 was allotted by the Goodrich Transportation Company at the opening of navigation last season to be distributed among the officers on their steamers who made the best record during last season. The prizes were awarded to the winners last week. Captain A. Gallagher, of the steamer Indiana, won the captain's prize; W. H. Jerome, chief engineer, and John Flint, second engineer of the steamer Atlanta, won the prizes for engineers. The prize for stewards was divided between T. A. Egan, of the steamer Indiana, and H. J. McCarthy, of the steamer City of Racine; and the prize for clerks was won by J. F. Fifield, ot the steamer Atlanta.

Grain freight rates are steadfast, 3¾c on corn to Oswego, 2c to Buffalo, 1⅝c to Port Huron, and 2⅛c on wheat to Toledo.

The steamer John Emory Owen was chartered for oats to Buffalo at 1½c; schooner Gifford for oats to Port Huron at 1⅜e; the steamer Parnell for wheat to Toledo at 2⅛c, steamer D. C. Whitney for corn to Oswego at 4c, vessels to pay tolls; steamers Bulgaria and City of Berlin for corn to Buffalo at 2c.

J. J. Rardon & Co. chartered the steamers Mecosta and Phoenix for corn to Buffalo at 2c.

H. A. Hawgood, James Corrigan, and C. R. Jones, of Cleveland, and W. D. Young and Captain Thomas Taylor, of Bay City, have visited Chicago this week.

Captoin George Robarge is here looking after the repairs being done to the steamer George W. Morley in Miller Bros.' dry-dock.

Captains William Keith and John Higgie are inspecting vessels at this port for classification by Inland Lloyds.

A committee of prominent citizens representing the Association for the Improvement of Chicago River started Tuesday evening for Washington. On Thursday they will meet all the representatives for Illinois for a conferenfe, and will go before the Rivers and Harbors Committee to present their case. The following gentlemen form the committee: J. S. Dunham, president of the association and chairman of the committee; George R, Brine, for Armour & Co.'s elevator interests; W. H. Harper, elevator interests; B. A. Eckhart, sanitary district; George Merryweather, coal interests; John C. Spry, lumber interests; L. O. Goddard, vice president C. B. & Q. R. R. railroad interests; W. R, Sterling, vice president Illinois Steel Works, iron interests; J. P. Tracey, Deering Harvester Co,, manufacturing interests; J. B. Galloway, real estate interests; Alderman M. B. Madden and W. D. Kent, commissioner of public works, Chicago city interests; Hon. George E. Adams, Hon. T. J. Henderson, Hon. Abney Taylor, interests at large.

The Independent Tug Line towed the schooner Iron State to Armour's A and B elevators to load, and back to her dock near 12th street; the steamer C. S. Parnell to the Air Line elevator to load; the steamer Chauncy Hurlbut from her dock in the Illinois Central slip to the Keith elevator to load; the steamer J. Emory Owen from Peabody's coal dock to Armour's C elevator to load; the schooner Northwest from Chicago Avenue Bridge to the Keith elevator to load; steamer George W. Morley from Polk street to Miller Bros'. shipyard; schooner D. K. Clint from Illinois Central slip to the Keith elevator to load; schooner Oak Leaf to the Atlantic elevator to load.

The social progressive euchre and supper party given by the Masters' and Pilots' Association on Saturday evening, and by the Ship Masters' Association on Monday evening, at their hall, was largely attended by the members and their friends, and very enjoyable evenings were spent. Captain D. Nicholson, of the steamer Tom Adams, and Mrs. Green won the prizes given by the Masters and Pilots, and Capt. Minskey and Mrs. Capt. Frank D. Root those given by the Ship Masters.

WILLIAMS.

PORT HURON.

THE NEW FLOATING DRY-DOCK WILL COST $50,000—ST. CLAIR RIVER COMPLETELY BLOCKED WITH ICE.

Special Correspondence to The Marine Record.

PORT HURON, Feb. 25, 1896.

Hon. George S. Lester died at Alpena, on Tuesday, aged 84 years. Mr. Lester was formerly a resident of Port Huron. He built a saw mill on Water street and built the house where General Hartsuff now lives.

Capt. J. W. Weismer, of Bay City, is visiting at the residence of Colin McLachlan.

It is understood that the new floating dry-dock which John C. McLaughlin and others will build in Port Huron will cost $50,000.

The third of the series of socials which are being given by the marine engineers, was held in their parlors a few evenings ago. Progressive pedro was the game of the evening and about 50 of the members and their families participated. Prizes were awarded as follows: First lady's, Mrs. Robert Dorman; first gentleman's, George Ingham; second lady's, Mrs. A. Bein; second gentleman's, W. Thorn; boobies, Mrs. Depew and H. Depew. After the prizes followed a bountiful repast, music, and dancing.

The marine engineers are about to issue their annual directory.

James Gammock, who has lived on the river bank for nearly 30 years, says he never saw St. Clair river so completely blocked with ice as it was on Wednesday.

Capt. John Symes is on the gain. He is so he can walk out, and if nothing happens to set him ba k he will be around all right in about three weeks.

A large delegation of sailors attended the meeting of the shriners at Detroit on Friday.

John E. Mills, Ed. J. Kendall, and Capt. Chas. Ludwig have purchased the barge Montgomery of H. M. Loud & Sons, for $3,800 cash. They will give her an entire rebuild and have her ready for the opening of navigation. Capt. Ludwig will sail her and tow with the Nelson Mills in the lumber trade. Her capacity is 850,000 feet.

E. J. K.

DULUTH AND SUPERIOR.

THE OUTLOOK IN LUMBER FREIGHTS SOMEWHAT STRONGER —GENERAL NEWS.

Special Correspondence to The Marine Record.

Captain Sinclair, of Ashland, contemplates opening a vessel agency in Duluth.

The general offices of the Northern Steamship Company and the Great Northern and Eastern Minnesota railways will soon be removed to the seventh floor of the Board of Trade building.

The market is better this week than it has been since last summer. Deals aggregating nearly seven million five hundred thousand feet of lumber and five million five hundred thousand lath are reported, all to go east during the coming season of navigation The B. B. Richards Lumber Company has sold 5,000,000 feet, and the Lesure Lumber Company and Merrill & Ring about seven hundred thousand between them, all to Hurd & Hauenstein, of Buffalo. Besides the Richards people have sold the lath referred to above to the same concerns. F. L. Gilbert has sold 1,500,000 feet of boards. Shippers are offering $2 on first trips to Buffalo, but do not wish to make charters at that rate for later dates. Vesselmen want $2.25 to Chicago.

The total of wheat in store at the two ports, according to last Saturday's report, is 11,646,829, an increase of 421,874 bushels during the week. Of this 512,000 bushels is afloat. Apportioned among the terminals and elevator lines the stock is as follows: Belt Line, 1,272,893; Consolidated, 3,2 7,362; Globe, 4.051,066; Great Northern, 791,625; Superior Terminal, 1,415,163; Consolidated B, 267,961; Consolidated H, 108,757. In store at Minneapolis there is 19,978,614 bushels of wheat.

CLEVELAND.

THE NEW FISHERIES BILL INTRODUCED IN THE OHIO LEGISLATURE—TALK OF A TUNNEL.

CLEVELAND, Feb 26, 1896.

The new bill regulating fishing in the state waters of Lake Erie will be introduced in the Ohio legislature in a day or two by Chairman Dutton, of the House Committee on Fish and Game. It provides for a closed season extending from from December 15 to March 15 and provides other regulations as printed in the RECORD a few weeks ago.

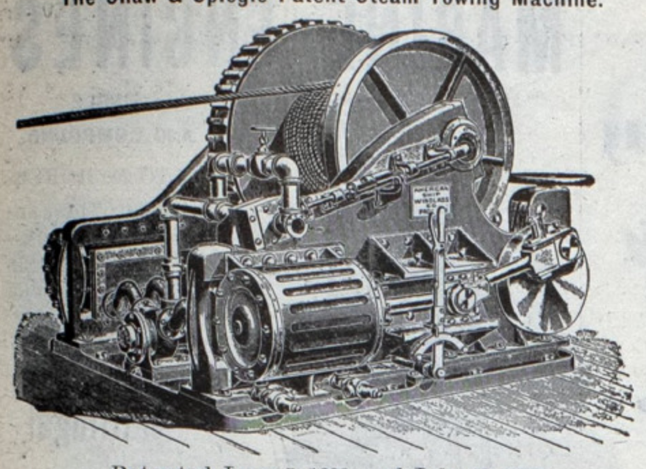
The city officials are discussing the advisability of tunneling the old river bed at Willow street, instead of placing a new bridge there. Teamsters are said to be decidedly in favor of the plan, and there is no question of its benefits to navigation in that locality. The only difficulties that might present themselves would be of an engineering character, and those would not be of an insurmountable character.

General Manager John F. Pankhurst, of the Globe Iron Werks Co., will leave Thursday for a two weeks' stay at Hot Springs, Va.

The case of the masters of the Hurd and Cayuga, who lost their licenses because of the collision of those two steamers, has been reopened.

Col. Jared A. Smith, Engineer Corps, U. S. A., announces that there will be a public hearing in the Chamber of Commerce rooms, at Toledo, on Monday, March 2, at 9 o'clock, a. m., to further discuss the subject of proposed harbor lines at that port.

The Shaw & Spiegle Patent Steam Towing Machine.



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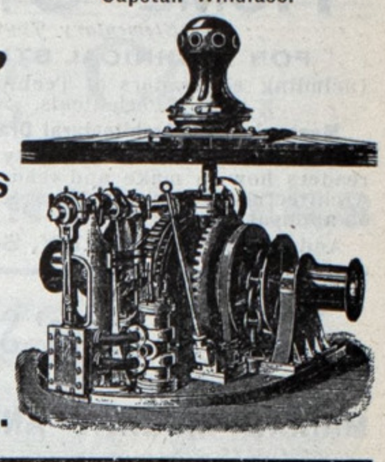

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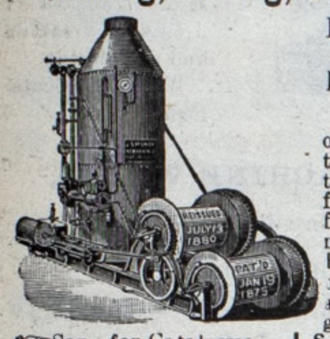

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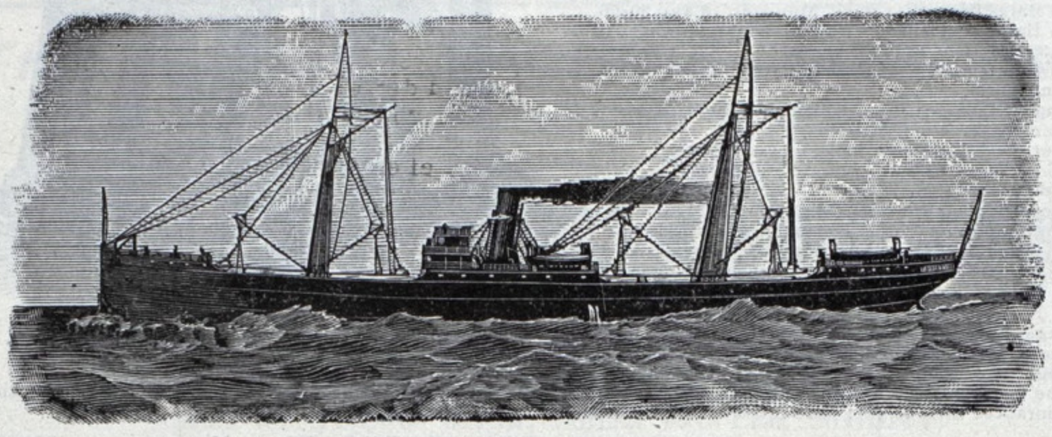

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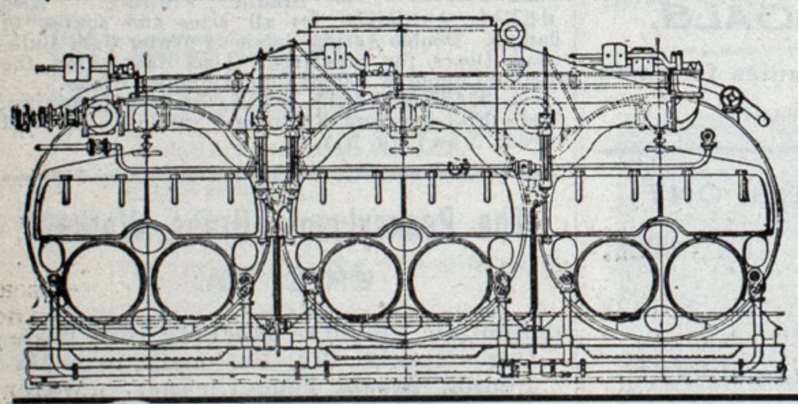

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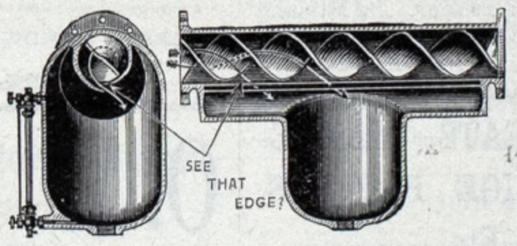

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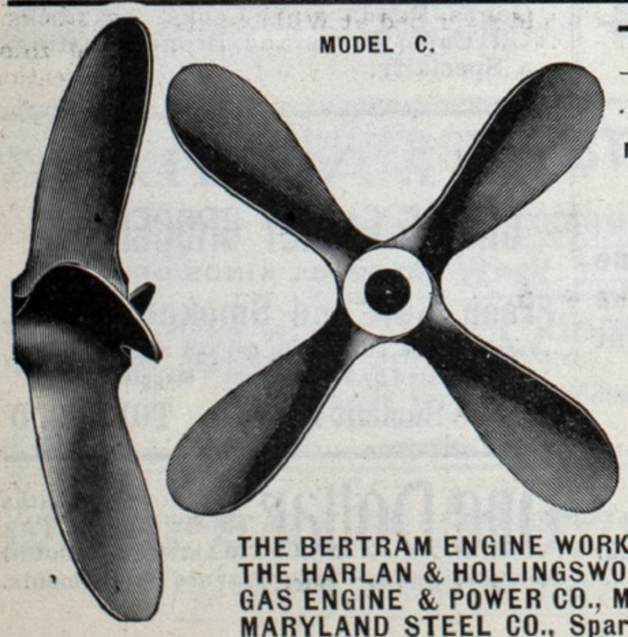

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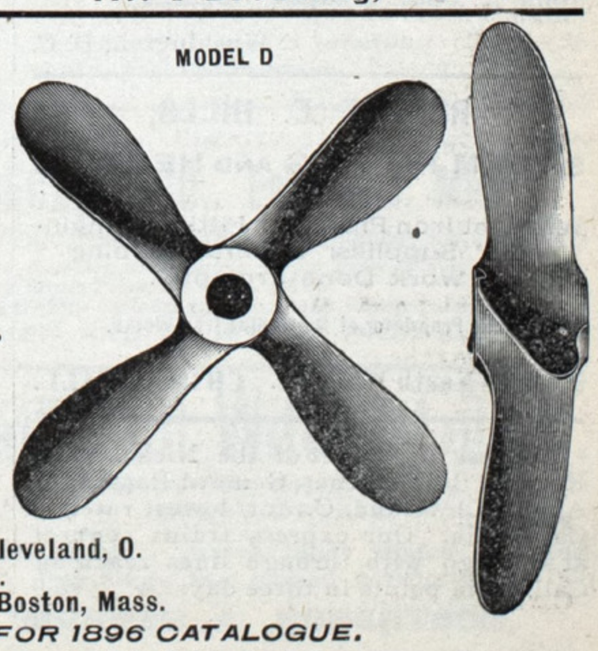

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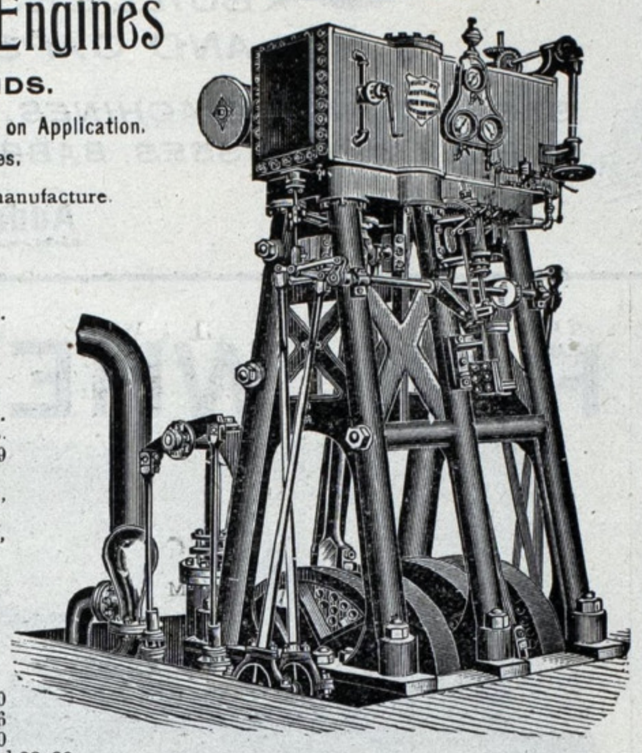

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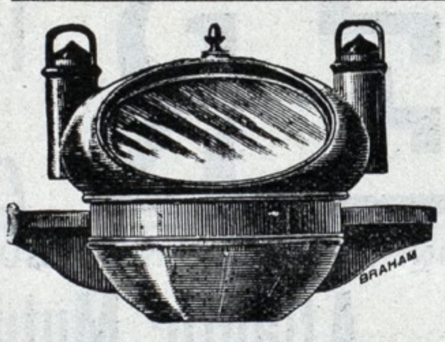

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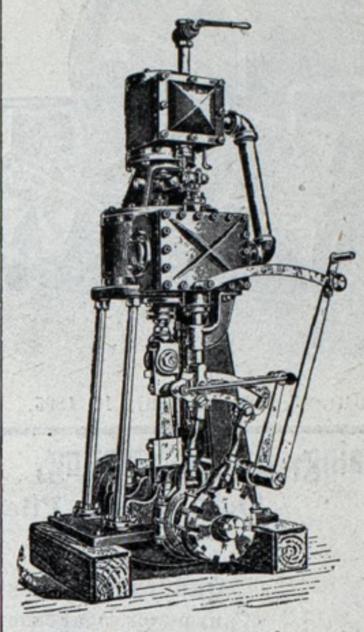

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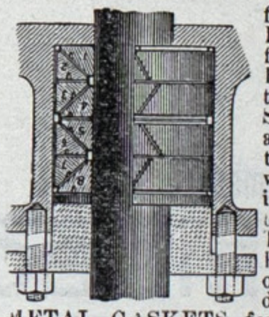

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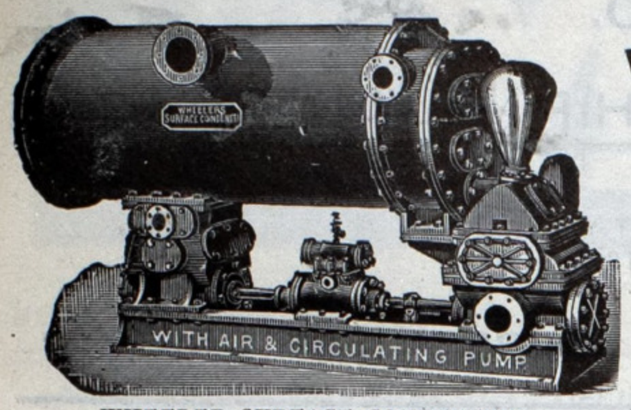

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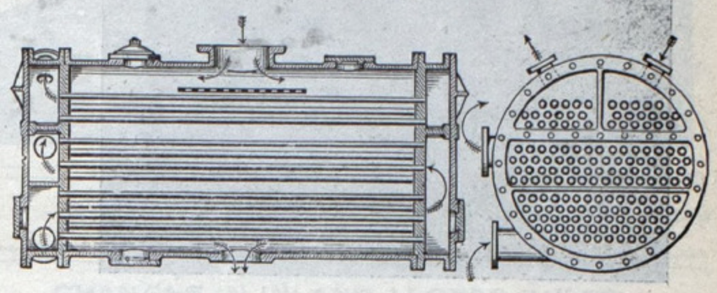

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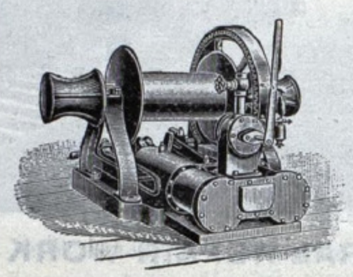

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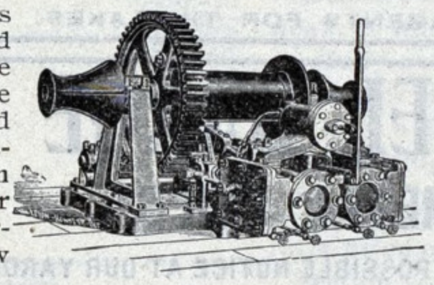

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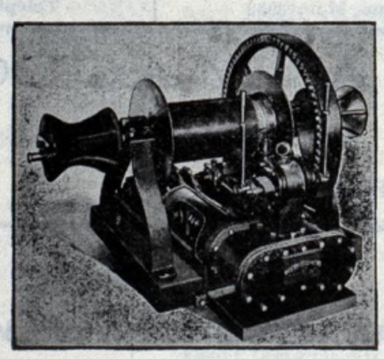

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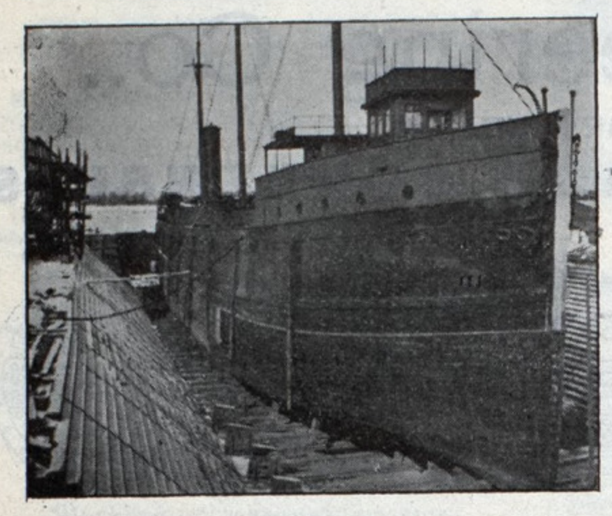

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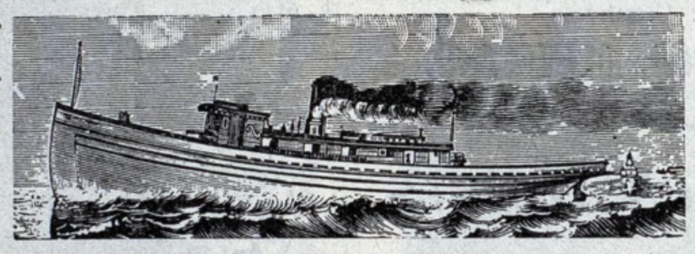

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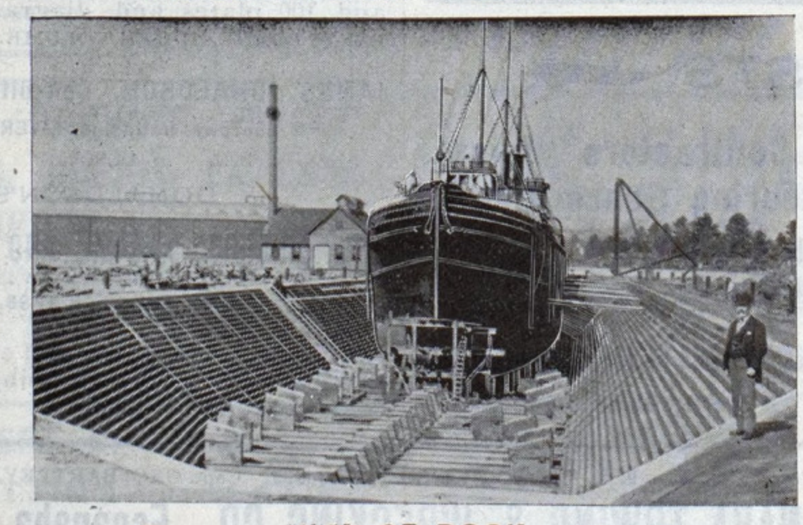

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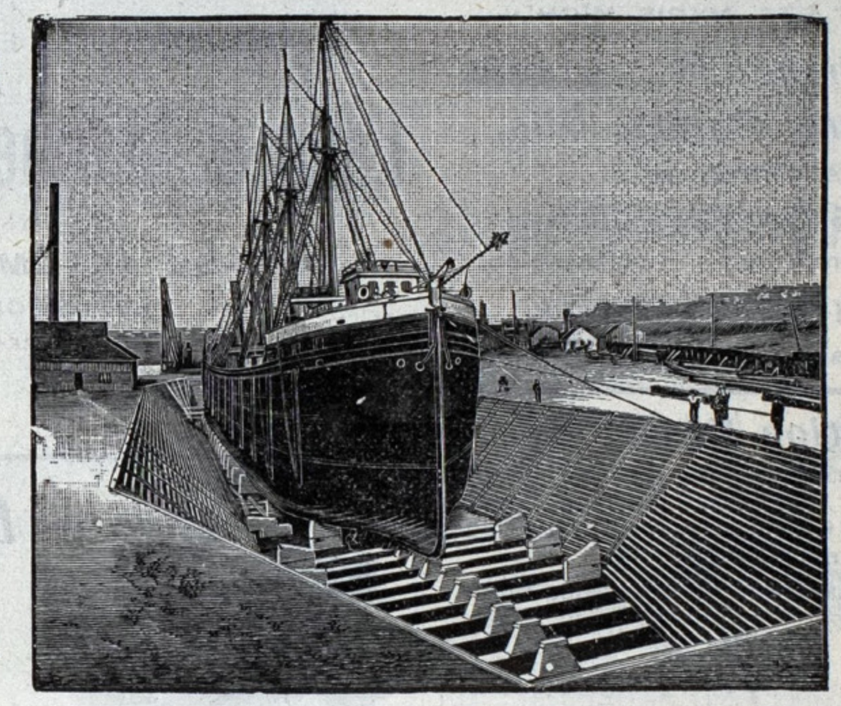

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